

ABSTRACT OF THE DISCLOSURE

A fluorine gas discharge laser electrode for a gas discharge laser having a laser gas containing fluorine is disclosed which may comprise a copper and copper alloy cathode body having an upper curved region containing the discharge footprint for the cathode comprising copper and a lower portion comprising a copper alloy, with the facing portion of the electrode if formed in a arcuate shape extending into straight line portions on either side of the arcuate portion, the straight line portions terminating in vertical straight sides, with the boundary between the copper including at least the arcuate portion, the electrode may comprise a bonded element machined from two pieces of material the first made of copper and the second made of a copper alloy bonded together before machining. The electrode may also comprise a first and a second elongated lopsided V-shaped groove formed along substantially all of the elongated electrode body forming a discharge receiving ridge between the first and second lopsided V-shaped grooves, with a differentially faster eroding material filling the first and second lopsided V-shaped grooves. also disclosed is an electrode system in which the one electrode, e.g., the cathode bows during operation and may comprise at least one of a first and second elongated gas discharge electrode being machined to form a crown to receive the gas discharge that compensates for the bowing of at least one of the gas discharge electrodes during operation of the fluorine gas discharge laser.